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TO

The Revd. RICHARD WALKER, D.D.

Vice-Maſter of TRINITY-COLLEGE,

AND

Profeſſor of *Caſuiſtical Divinity* in the

UNIVERSITY of CAMBRIDGE.

Revd. SIR,

THE following Work may claim your Patronage with ſome Propriety, ſince it is to you that it owes it's Birth. Had it not been for your Munificent Deſign in founding a BOTANIC GARDEN, the Author would ſcarce have thought of attempting to reſtore the Study of BOTANY, which was almoſt loſt among us. To teach this extenſive Science without a good GARDEN is next to impoſſible; at leaſt it cannot be done effectually, nor even tolerably without allotting more Time to it than I have to ſpare.

For want of ſuch a Deſign as Yours, thoſe Seeds which the excellent Mr *Ray* once planted, and which have been ſince his Time now and then watered, are not yet brought to Perfection. That this, by Means of Your Noble Deſign, may at length be performed, and that the Munificence of thoſe who wiſh well to the Study of Nature may compleat what you have ſo generouſly begun, is the hearty wiſh of,

Rev^d. SIR,

Your moſt devoted

And Obedient Servant,

Cambridge,
Jan. 1, 1764.

THOMAS MARTYN.

THE

PREFACE.

WHILST the Works of Nature are ſo much ſtudied in moſt Countries of *Europe*; it is to be lamented that the Progreſs of Natural Hiſtory has been but ſlow in *Great Britain*. Notwithſtanding we muſt yield in point of Climate to many other Kingdoms, yet upon the whole it muſt be allowed that our Advantages are ſuperior to any which they can boaſt. The great Enlargement of the *Britiſh* Dominions in *America*, has opened a wide Field for new Diſcoveries and Improvements in Natural Hiſtory; and the Extenſiveneſs, I might almoſt ſay the Univerſality, of our Trade, gives into our Hands the Natural Treaſures of every Climate. Nothing is wanting but a proper Spirit to make uſe of theſe great Advantages, and to receive thoſe Treaſures which Nature ſo willingly and ſo liberally pours in upon us from every Quarter.

France has generally employed Men of Eminence in various Parts of the World to ſearch after the Productions of Nature; whilſt Perſons of the beſt Abilities have been ſupported at

Home to receive the Fruits of their Labours, to obſerve the Nature of new Productions, and to make Experiments upon the old. The Northern Kingdoms of *Sweden* and *Denmark*, which are confeſſedly much our Inferiors both in Point of Climate and of Trade, have yet far outſtripped us in this Purſuit: The former of theſe, under the Influence and Direction of the celebrated *Linnæus*, has diſpatched inquiſitive Perſons into almoſt every Part of the World; and theſe Enquiries have been attended with a Succeſs that has deſervedly augmented the Credit of Natural Hiſtory, and derives new Honour on the illuſtrious *Swede*. *Denmark* has very lately caught this Flame, but under the Patronage of the King himſelf it ſeems to make a rapid Progreſs; in Imitation of the neighbour Kingdom, inquiſitive Perſons have been ſent to travel in foreign Countries, and that Part of the Natural Hiſtory of *Denmark* which reſpects its vegetable Productions will be more elegant and compleat than any other Kingdom can boaſt.

The great Spirit of Planting which has lately ariſen in *Britain*, and the noble Taſte which now prevails in Gardening, give room to hope that Botany at leaſt may be purſued among us with more Ardour as a Science. The Botanic Garden at *Edinburgh* already begins to flouriſh under the Conduct of Profeſſor *Hope*, who ſeems intent at the ſame Time upon ſearching for the almoſt neglected Plants of *Scotland*: the Garden at *Cambridge* has at length got an Eſtabliſhment that may ſerve at leaſt for its Support; the noble Garden at *Kew* is excellently furniſhed, and conſidering how few Years it has ſubſiſted is in wonderful Forwardneſs; and Mr *Miller*'s acknowledged Abilities have long made that of *Chelſey* well known over *Europe*. We are not therefore deſtitute of Means for Inſtruction; what now ſeems principally wanting is to employ Men who have a Turn for the Study of Nature to ſearch for the hidden Treaſures of diſtant Countries, eſpecially thoſe which have been lately added to the Dominions of *Britain* in *America*; by ſuch Enquiries, at this Time of publick Tranquillity, no doubt but many uſeful natural Productions might be diſcovered; there is no want of Men that have Curioſity and Ability ſufficient to undertake this Buſineſs, if they were properly ſupported; and ample Materials might be furniſhed thereby for a Natural Hiſtory of the whole *Britiſh Empire*.

With regard to the following *Compendium* I ſhall only obſerve, that it was impoſſible to give the Heads of the laſt Twenty Lectures, in which the *Genera* and *Species* of Plants will be demonſtrated, 'till the Botanic Garden is in a better State than it is at preſent. The Author hopes any Imperfections may be excuſed, ſince he had no one to ſhew him the Way; and his Deſign was only to give his Pupils a Sketch of his Lectures, not to expoſe himſelf to the critical Eye of the Public.

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HEADS

OF A

Courſe of LECTURES in BOTANY.

LECTURE THE FIRST.

I. INTRODUCTION.

II. 1. BOTANY defined.
A VEGETABLE defined.
The conſtituent Parts of a Vegetable,

- Root
- Stem
- Leaves
- Appendages
- Fructification.

2. The ROOT.

- Fibrous
- Tuberous
- Bulbous
  - Solid
  - Tunicated
  - Squamous
- Teſticulated
- Palmated
- Fuſiform
- Granulous

3. The STEM.

- Stalk
- Trunk
- Straw, *Culmus*
- Scapus
- Frons

Branch
Bough
Flower-ſtalk, *Pedunculus*
Leaf-ſtalk or Foot-ſtalk, *Petiolus*
Head
Spike
Panicle
Whorl, *Verticillus*
Cluſter, *Racemus*
Umbell { Simple
  Compound.

Simple
Compound
Dichotomous.

Naked
Flexuoſe
Twining, *Volubilis*
Climbing, *Scandens*
Procumbent
Creeping
Paraſitical
Two-edged, *Anceps*
Furrowed, *Sulcatus*
Striated
Villous
Scabrous
Briſtly, *Hiſpidus*

III. 1. The *Organization* of Plants.

Vegetative Life, how kept up.

Diſeaſes and *Death*, whence.

The *Variety* in the Vegetable World, whence it ariſes.

The *Parts* of which a Plant is compoſed, are
Fibres
Veſſels { Succiferous Veſſels
  Veſicles, *Utriculi*
  Air Veſſels, *Tracheæ*
Fluids.

2. A *Root* conſiſts of
    - Pith
    - Wood
    - Bark
        - Inner, *Liber*
        - Outer, *Cortex*
    - Cuticle

Its *Uſes*

Its *Duration*
- Annual
- Perennial

3. The *Stem* conſiſts of
    - Pith
    - Wood
    - Bark
        - Inner, *Liber*
        - Outer, *Cortex*
    - Cuticle

The *Structure* of the Stem
- The *Circles* in the Trunks of Trees, whence formed
- Concentrical within the Tropics
- The Age of a Tree to be diſcovered from the Number of theſe Circles
- The Circles nearer to each other as they approach the Centre of the Trunk

The *Uſes* of the Stem

Its *Duration*
- Annual
- Perennial

Of the Age of Trees

Its *Magnitude*

Concerning the great Size of Trees.

LECTURE THE SECOND.

Of Leaves.
- Simple
- Compound

A *Simple* Leaf:

I. With reſpect to the *Form* of its *Border*, is
- Round
- Ovate
- Elliptic, *Ovale*
- Spatulate
- Cuneiform
- Oblong

II. With reſpect to its *Angles* or *Prominencies*, is

- Lanceolate
- Linear
- Aceroſe
- Subulate
- Triangular, *&c.*

III. With reſpect to its *Sinus's* or *Hollows*,

- Reniform
- Cordate
- Lunulate
- Sagittate
- Haſtate
- Panduriform
- Divided, *Fiſſum.* Bifid, *&c.*
- Lobate. Bilobate, *&c.*
- Palmate
- Pinnatifid
- Lyrate
- Laciniate
- Sinuate
- Parted. Bipartite, *&c.*
- Intire

IV. With reſpect to its *Apex* or *Extremity*,

- Truncate
- Retuſe
- Emarginate
- Obtuſe
- Acute
- Acuminate
- Cirrhoſe

V. With reſpect to its *Margin*,

- Spinoſe
- Dentate
- Serrate
- Crenate
- Repand
- Cartilaginous
- Ciliate

VI. With reſpect to its *Surface*,

- Viſcid
- Tomentoſe
- Woolly, *Lanatum*

Hairy, *Piloſum*
Briſtly, *Hiſpidum*
Rough, *Scabrum*
Prickly, *Aculeatum*
Striated
Veſicular, *Papilloſum*
Dotted, *Punctatum*
Shining, *Nitidum*
Plaited, *Plicatum*
Waved, *Undulatum*
Curled, *Criſpum*
Wrinkled, *Rugoſum*
Concave, *Concavum, ſ. Cucullatum*
Veiny
Nervoſe
Coloured
Smooth

VII. With reſpect to its ſubſtance,
Cylindrical
Semicylindrical
Hollow, *Tubuloſum*
Succulent, *Succulentum, ſ. Carnoſum*
Plane
Gibboſe
Channelled, *Canaliculatum*
Enſiform
Acinaciform
Dolabriform
Linguiform
Two-edged, *Anceps*
Furrowed, *Sulcatum*
Carinated
Membranaceous

LECTURE THE THIRD.

I. Of Compound Leaves.

I. A *Compound Leaf* with reſpect to its *Structure*, is

- Jointed, *Articulatum*
- Digitated
- Binate
- Ternate
- Quinate
- Pinnate
    - Unequally
    - Cirrhoſely
    - Abruptly
    - Oppoſitely
    - Alternately
    - Interruptedly
    - Articulately
    - Decurſively
- Conjugate

II. With reſpect to the *Degree* of Compoſition, is

- Decompounded
- Bigeminate
- Biternate
- Bipinnate
- Pedate
- Supradecompounded
- Triternate
- Tripinnate

III. With reſpect to their *Situation*, Leaves are

- Radical
- Cauline
- Axillary
- Verticillate
- Oppoſite
- Alternate
- Scattered, *Sparſa*
- Imbricated
- Faſciculated
- Double, *Diſticha*

IV. With reſpect to their *Connexion* with the Stem

- Peltate
- Petiolate
- Seſſile
- Decurrent
- Embracing, *Amplexicaule*
- Perfoliate
- Connate
- Sheathing, *Vaginans*

V. With reſpect to their *Direction*,

- Oblique
- Inflexed
- Approximating, *Adpreſſum*
- Erect
- Patent
- Horizontal
- Declining, *Reclinatum*
- Revolute
- Pendent, *Dependens*
- Rooting, *Radicans*
- Swimming
- Immerſed

II. 1. Of BUDS.

The *Manner* in which Leaves are produced from the Bud
The *Situation* of the Leaves within the Bud
The *Time* when Buds open

2. Of LEAVES.

- Veſſels
- Uſes

Concerning the Sleep of Plants

III. The *Fulcra* or *Appendages.*

- Stipula
- Bractea
- Thorn
- Prickle
- Claſper or Tendril
- Gland
- Hair

The *Uſes* of theſe Parts.

LECTURE THE FOURTH.

Of the FRUCTIFICATION.

I. 1. The FLOWER.

- Empalement or Flower-cup, *Calyx*
  - Sheath, *Spatha*
  - Chaff, *Gluma*

- Corolla or Flower-leaves
  - Petals
    - Monopetalous
      - Tube
      - Limb
      - Bell-ſhaped, *Campanulata*
      - Funnel-ſhaped, *Infundibuliformis*
      - Salver-ſhaped, *Hypocrateriformis*
      - Wheel-ſhaped, *Rotata*
      - Ringent
        - Upper Lip, *Galea*
        - Lower Lip or Beard, *Barba*
    - Polypetalous
      - Tail, *Unguis*
      - Border, *Lamina*
      - Cruciform
      - Papilionaceous
        - Standard, *Vexillum*
        - Wings, *Alæ*
        - Keel, *Carina*

- Nectarium.

- Stamen
  - Filament
  - Anthera or Summit
  - Farina or Pollen

- Pointal, *Piſtillum*
  - Ovary
  - Style
  - Stigma

- Male
- Female
- Hermaphrodite

Flowers.

I. 2. The FRUIT.

Seed-veſſel

- Capſule
  - Valve, *Valvula*
  - Partition, *Diſſepimentum*
  - Cell, *Loculamentum*
- Siliqua
- Legumen
- Conceptacle, *Conceptaculum*, *ſ.* *Folliculus*
- Cone

- Plum, *Drupa*
- Apple, *Pomum*
- Berry, *Bacca*
- Mulberry, *Morus*

Seed

- Heart
- Lobes, *Cotyledones*
- Ligature
- Scar, *Hilum*
- Coat, *Arillus*
- Crown, *Coronula*
  - Calyculate
  - Downy
    - Feathered, *Pappus plumoſus*
    - Hairy, *Pappus piloſus*
    - Incumbent
    - Stipitated
- Wing, *Ala*

- Nut
- Grain
- Propago

I. 3. The RECEPTACLE.

- Proper
- Common

II. 1. Uſes of the Empalement and Corolla

2. The Appearance and Situation of the Nectarium

3. Of the Stamina

- Filaments
  - Form
  - Situation
- Antheræ
  - Number
  - Form
  - Situation
- Pollen; Form

4. Of

4. Of the Pointal
    - Situation
    - Structure

  Ovary, Style, Stigma
  - Number
  - Form
  - Situation
  - Duration

5. Of the Seed Veſſel.
  - Unicapſular, Bicapſular, *&c.*
  - Unilocular, *&c.*
  - Bivalve, *&c.*

  Partition
  - Correſponding
  - Contrary

  - Form
  - Elaſticity

  Drupa
  - Pill
  - Pulp
  - Stone

  Pomum
  - Pill
  - Pulp
  - Calculary
  - Coare

  Berry
  - Pill
  - Pulp

  The Uſes of the Seed-veſſel

6. Of the Seed
  Lobes; Structure
  - Monocotyledonous
  - Dicotyledonous
  - Polycotyledonous

  Plants

  Heart
  - Plume
  - Radicle

  Situation

  Of the Ligature and Scar

  Of the Proviſions to facilitate the Propagation of Seeds

7. Of the Receptacle
  - Plane
  - Convex
  - Conical

- Naked
- Dotted
- Villous
- Briſtly
- Chaffy

III. Of that Property of Flowers which is called *Vigiliæ Florum*

LECTURE THE FIFTH.

Of VEGETATION.

The Principles of the Seed
The manner in which the Seed vegetates
Of the Seminal Leaves, and their Uſe
The Cauſe of Vegetation
The Vegetable *Pabulum*
Of Veſſels
- Succiferous Veſſels
- Veſicles, *Utriculi*
- Air Veſſels, *Tracheæ*

Of the Juices
The Juices of the
- Root
- Stem
- Leaf
- Flower
- Seed
- Bark

Of the Air in the Air-veſſels
Of the Motion of the Juices, and the Cauſe of it
The Diſcharge of Vegetables by Perſpiration
The Force with which the Juices riſe
Of the Circulation of the Juices in Vegetables

LECTURE THE SIXTH.

The HISTORY of BOTANY.

I. The State of the Science among the Ancients
- Theophraſtus
- Dioſcorides
- Pliny

II. The Arabians

III. The barbarous Writers
IV. The State of Botany at the Reſtoration of Learning
V. Tranſlators and Commentators
VI. The State of the Science from the latter End of the 16th to the beginning of the 18th Century
VII. The Uſe and Origin of Method
- Geſner
- Columna
- Cæſalpinus

LECTURE THE SEVENTH.

The Syſtem of *Cæſalpinus*.

TREES
1. With the Heart in the upper Part of the Seed
2. With the Heart in the lower Part of the Seed

HERBS
3. With one Seed to a Flower
4. With one Berry
5. With one Capſule
6. With two Seeds
7. With two Capſules
8. With three Seeds
9. With a trilocular Capſule
10. With four Seeds
11. With ſeveral Seeds
12. With ſeveral Capſules
13. Without Seed

Of Dr *Moriſon* and his Syſtem

LECTURE THE EIGHTH.

The Botanical Works of Mr *Ray*
Mr *Ray*'s Syſtem

HERBS
Not Floriferous or Inferior
1. Sea-Plants
2. Fungi
3. Moſſes
4. Capillaries

Floriferous or Superior

Dicotyledonous
- 5. Apetalous
- 6. Planipetalous
- 7. Diſcous with a downy Seed
- 8. Diſcous with a ſolid Seed, or Corymbiferous
- 9. Capitated
- 10. Gymnomonoſpermous
- 11. Umbelliferous
- 12. Stellated
- 13. Aſperifolious
- 14. Verticillated
- 15. Gymnopolyſpermous
- 16. Pomiferous
- 17. Bacciferous
- 18. Multiſiliquous
- 19. Vaſculiferous with Monopetalous and Dipetaſous Flowers
- 20. Siliquous
- 21. Leguminous
- 22. Vaſculiferous with Pentapetalous Flowers

Monocotyledonous
- 23. Bulbous
- 24. Graſſes
- 25. Anomalous

TREES.

Of the Diſtinction into
- Trees
- Shrubs
- Underſhrubs
- Herbs

- 26. Palms
- 27. With the Male and Female Flowers diſtinct

Hermaphrodite Flowers
- 28. With moiſt umbilicated Fruits
- 29. With moiſt Fruits not umbilicated
- 30. With dry Fruits not Siliquous
- 31. Siliquous
- 32. Anomalous

LECTURE THE NINTH.

The Syſtems of *Rivinus* and *Tournefort.*

- Of Arbitrary Claſſes
- The Claſſes of *Rivinus*
  - Regular, 1. Monopetalous Flowers
    - 2. Dipetalous
    - 3. Tripetalous
    - 4. Tetrapetalous
    - 5. Pentapetalous
    - 6. Hexapetalous
    - 7. Polypetalous
  - Compound Flowers
    - 8. With regular Florets only
    - 9. With regular and irregular Florets
    - 10. With irregular Florets only
  - Irregular, 11. Monopetalous Flowers
    - 12—17. Dipetalous, *&c.* as before
    - 13. Imperfect Plants
- Of M. *Tournefort* and his Syſtem

M. *Tournefort*'s Claſſes.

- Herbs
  - Perfect
    - With a Simple Flower
      - Monopetalous
        - 1. Campaniform, Bell-ſhaped
        - 2. Infundibuliform, Funnel-ſhaped
Rotated, Wheel-ſhaped
        - 3. Anomalous or Perſonated
        - 4. Labiated
      - Polypetalous
        - 5. Cruciform
        - 6. Roſaceous
        - 7. Roſaceous in an Umbell
        - 8. Caryophylleous
        - 9. Liliaceous
        - 10. Papilionaceous
        - 11. Anomalous
    - With a Compound Flower
      - 12. Floſculous
      - 13. Semifloſculous
      - 14. Radiated
  - Imperfect

15. Stamineous
16. Ferns
17. Moſſes, Fungi, Sea-Plants

Trees, with
18. Apetalous Flowers
19. Amentaceous
20. Monopetalous
21. Roſaceous
22. Papilionaceous

The Syſtems of M. *Magnol* and others

LECTURE THE TENTH.

Of the *Sexes* in Plants.

The Syſtem of *Linnæus*

His Claſſes
1. Monandria
2. Diandria
3. Triandria
4. Tetrandria
5. Pentandria
6. Hexandria
7. Heptandria
8. Octandria
9. Enneandria
10. Decandria
11. Dodecandria
12. Icoſandria
13. Polyandria

LECTURE THE ELEVENTH.

The Continuation of *Linnæus*'s Syſtem

14. Didynamia
    - Gymnoſpermia
    - Angioſpermia
15. Tetradynamia
    - Siliculoſæ
    - Siliquoſæ

16. Monadelphia
17. Diadelphia
18. Polyadelphia
19. Syngeneſia
    - Polygamia
        - Æqualis
        - Superflua
        - Fruſtranea
        - Neceſſaria
    - Monogamia
20. Gynandria
21. Monoecia
22. Dioecia
23. Polygamia
24. Cryptogamia
    - Filices
    - Muſci
    - Algæ
    - Fungi
25. Appendix, Palmæ

The other Works of *Linnæus*

The other Writers of this Century

LECTURE THE TWELFTH.

Monandria
Diandria
Triandria

LECTURE THE THIRTEENTH.

Triandria
Tetrandria

LECTURE THE FOURTEENTH.

Pentandria Monogynia

LECTURE THE FIFTEENTH.

Pentandria Digynia

LECTURE THE SIXTEENTH.

Hexandria
Heptandria
Octandria
Enneandria

LECTURE THE SEVENTEENTH.

Decandria
Dodecandria

LECTURE THE EIGHTEENTH.

Icoſandria

LECTURE THE NINETEENTH.

Polyandria

LECTURE THE TWENTIETH.

Didynamia Gymnoſpermia

LECTURE THE TWENTY-FIRST.

Didynamia Angioſpermia

LECTURE THE TWENTY-SECOND.

Tetradynamia

LECTURE THE TWENTY-THIRD.

Monadelphia

LECTURE THE TWENTY-FOURTH.

Diadelphia
Polyadelphia

LECTURE THE TWENTY-FIFTH.

Syngeneſia Polygamia Æqualis
Superflua

LECTURE THE TWENTY-SIXTH.

Syngeneſia Polygamia Fruſtranea
Neceſſaria
Monogamia

LECTURE THE TWENTY-SEVENTH.

Gynandria

LECTURE THE TWENTY-EIGHTH.

Monoecia

LECTURE THE TWENTY-NINTH.

Dioecia
Polygamia

LECTURE THE THIRTIETH.

Cryptogamia Filices
Muſci

LECTURE THE THIRTY-FIRST.

Cryptogamia Algæ
Fungi

Concluſion

FINIS.